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SUBJECT: Informs that 10CFR50.55(a)(g)(4) requires ISI performed at KNPP comply w/Section XI of ASME Boiler & PV code.

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WISCONSIN PUBLIC SERVICE CORPORATION

600 North Adams • P.O. Box 19002 • Green Bay, WI 54307-9002

December 30, 1994

10 CFR 50.55a(a)(3)

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Ladies/Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
Inservice Inspection (ISI) Relief Requests

10CFR50.55(a)(g)(4) requires that inservice inspections (ISI) performed at the Kewaunee Nuclear Power Plant (KNPP) comply with Section XI of the ASME Boiler and Pressure Vessel Code, 1980 Edition including the Winter 1981 Addenda for 2nd Interval and 1989 Edition for the 3rd Interval. Wisconsin Public Service Corporation (WPSC) has determined that certain hydrostatic pressure test requirements are a hardship and therefore requests approval pursuant 10CFR50.55a(a)(3) for the use of ASME Code Cases N-416-1 and N-498-1 as alternatives to the ASME Section XI requirements in effect at KNPP. Code Case N-416-1 was approved for use on February 15, 1994, by the ASME Board of Nuclear Codes and Standards and is included in Supplement 8 of the Code Case Book for the 1992 edition of the Code. Code Case N-498-1 was approved by the ASME Board of Nuclear Codes and Standards on May 11, 1994 and is included in Supplement 9 of the Code Case Book for the 1992 edition of the Code. Neither of these code cases have been added to the approved list of code cases included in NRC Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability - ASME Section XI Division 1."

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December 30, 1994
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Relief Request RR-G-1 (being requested for the 2nd Interval) addresses Code Case N-498-1. Code Case N-498-1, "Alternative Rules for 10-Year System Hydrostatic Pressure Testing for Class 1, 2 and 3 Systems," utilizes leakage (Class 1) and pressure (Class 2 and 3) tests, in conjunction with other requirements, as an acceptable alternative to 10-year hydrostatic pressure tests.

Relief Request RR-G-3 (being requested for the 3rd Interval) discusses Code Case N-416-1. Code Case N-416-1, "Alternative Pressure Test Requirement for Welded Repairs or Installation of Replacement Items by Welding," addresses the use of a system leakage test and NDE as an alternative to performing the hydrostatic pressure test required by IWA-4000 for Class 1, 2 and 3 components, provided certain requirements are met.

In accordance with 10CFR50.55a(a)(3), descriptions and bases for the relief requests, as well as alternative methods of examination, are included in the attachment to this letter. Based on information contained in RR-G-1 and RR-G-3 WPSC has determined that the proposed alternatives will provide an acceptable level of quality and safety and that complying with the ASME Section XI requirements would result in hardship or unusual difficulties without a compensating increase in the level and quality of safety.

WPSC has delayed requesting relief until the end of the second inspection interval in anticipation that the NRC staff would endorse the use of Code Cases N-416-1 and N-498-1 thru Regulatory Guide 1.147 some time in late 1994. After discussions with various NRC personnel, WPSC realized (that although the NRC generally accepts the use of these Code Cases) the earliest opportunity for NRC endorsement thru Regulatory Guide 1.147 will be when revision 12 is issued - probably in the fall of 1995. As the attached relief requests pertain to inspections required to be completed during the upcoming KNPP refueling outage, your prompt review would be appreciated. The 1995 refueling outage is scheduled to begin April 1.

Sincerely,



Charles A. Schrock
Manager - Nuclear Engineering

CAT/san

Attach.

cc - US NRC Region III
US NRC Senior Resident Inspector

ATTACHMENT 1

Letter from C. A. Schrock (WPSC)

to

Document Control Desk (NRC)

Dated

December 30, 1994

Inservice Inspection (ISI) Relief Requests

RR-G-1 and RR-G-2

Relief Request No. RR-G-1

1. Components Affected

All Class 3 pressure retaining components:

Component/System	Drawing
Service Water System	M-202, M-547, M-606
Component Cooling Water System	XK-100-19, XK-100-20
Spent Fuel Pool System	M-218
Auxiliary Feedwater System	M-205
Boric Acid Injection and Recirculation Piping	XK-100-38

2. Section XI Requirements

Hydrostatic pressure tests per the 1980 edition thru Winter 1981 Addenda of Section XI, Table IWD-2500-1, Categories D-A, D-B, and D-C.

3. Basis for Requesting Relief

Satisfying this provision of the Code requires significant resources for planning, scheduling, maintenance, engineering, and procedure writing to address operational concerns and personnel and plant safety issues related to placing the plant in a non-conventional configuration to support, isolate, or obtain an above normal operating pressure required for hydrostatic testing. This relief request is being submitted at this time because of the hardship of performing class 3 hydrostatic pressure tests required to be completed during the upcoming KNPP refueling outage. Hardships or unusual difficulties caused by Class 3 hydrostatic pressure testing have been identified relating to operations, scheduling, cost, and ALARA and are discussed herein.

During hydrostatic testing the affected system is unavailable to support plant operations even if called upon to perform its safety function for the time required to isolate and align the system; perform fill and vent operations; connect an external pump and provide adequate relief capability for the system; maintain pressure for at least 4 hours for insulated components; install and remove blank flanges and jumpers; reinstall/test safety

and relief valves; recalibrate instrumentation; and realign the system for service; etc. Although hydrostatic testing is performed with the utmost of care utilizing detailed procedures and trained personnel, there is a very small probability of damaging plant equipment, misaligning equipment, or experiencing some other unforeseen incident which could affect plant safety.

KNPP has not gone through the formal process of scheduling hydrostatic pressure tests for the spring 1995 refueling outage, however, our experience in scheduling and conducting hydrostatic tests indicates that implementation of class 3 hydrostatic tests would significantly affect the flow and length of our outage. It is anticipated that hydrostatic testing of class 3 systems would increase the length of the 1995 refueling outage by approximately 2 days with a resultant replacement power cost of approximately \$400,000.00. In addition, operating costs would be increased approximately \$300,000.00 due to the costs associated with the preparation and implementation of the hydrostatic tests. System pressure testing in lieu of hydrostatic pressure testing of the class 3 systems will result in an estimated reduction in radiation exposure of approximately 0.50 rem.

The alternative pressure tests permitted by Code Case N-498-1 fulfill the same purpose as a hydrostatic pressure test, (i.e., a check for component system leakage) at a reduced cost while increasing plant safety. Safety is increased when pressure testing is selected over hydrostatic testing, because: 1) the affected system will be available to perform its safety function sooner if needed, 2) the probability of challenging the pressure integrity of any affected component or causing an inadvertent actuation of a safety/relief valve or safety feature is reduced, and 3) the elimination of piping jumpers and blank flanges reduces the possibility of damage to pipe connections and relief valves which could cause system leakage or valve inoperability. It should also be noted that the systems affected by this relief request are normally operating. As such, any system leakage would be readily detected and mitigating actions taken precluding any detrimental effects to the health and safety of the public.

4. Alternative Method of Examination

Implement the following criteria taken from Code Case N498-1 "Alternative Rules for 10-Year System Hydrostatic Pressure testing for Class 1, 2, and 3 Systems," in lieu of the 10-year system hydrostatic tests required by Table IWD-2500-1, Categories D-A, D-B, and D-C.

- (a) A system pressure test shall be conducted at or near the end of each inspection interval or during the same inspection period of each inspection interval of Inspection Program B.
- (b) The boundary subject to test pressurization during the system pressure test shall extend to all Class 3 components included in those portions of systems required to operate or support the safety system function up to and including the first normally closed valve, including a safety or relief valve, or valve capable of automatic closure when the safety function is required.
- (c) Prior to performing the VT-2 visual examination, the system shall be pressurized to nominal operating pressure for at least 4 hours for insulated systems and 10 minutes for noninsulated systems. The system shall be maintained at normal operating pressure during performance of the VT-2 visual examination.
- (d) The VT-2 visual examination shall include all components within the boundary identified in (b) above.
- (e) Test instrumentation requirements of IWA-5260 are not applicable.

Relief Request No. RR-G-3

1. **Components Affected**

Class 1, 2 and 3 pressure retaining components.

2. **Section XI Requirements**

Hydrostatic pressure test for welded repairs or installation of replacement items by welding per 1989 edition of Section XI, Article IWA-4000.

3. **Basis for Requesting Relief**

Satisfying this provision of the Code requires significant resources for planning, scheduling, maintenance, engineering, and procedure writing to address operational concerns and personnel and plant safety issues related to placing the plant in a non-conventional configuration to support, isolate, or obtain an above normal operating pressure required for hydrostatic testing. This relief request is being submitted at this time because of the ongoing hardship of performing hydrostatic pressure tests associated with repair and replacement activities. Hardships or unusual difficulties caused by hydrostatic pressure testing have been identified relating to operations, scheduling, and cost and are discussed herein.

During hydrostatic testing the affected system is unavailable to support plant operations even if called upon to perform its safety function for the time required to isolate and align the system; perform fill and vent operations; connect an external pump and provide adequate relief capability for the system; maintain pressure for at least 4 hours for insulated components; install and remove blank flanges and jumpers; reinstall/test safety and relief valves; recalibrate instrumentation; and realign the system for service; etc. Although hydrostatic testing is performed with the utmost of care utilizing detailed procedures and trained personnel, there is a very small probability of damaging plant equipment, misaligning equipment, or experiencing some other unforeseen incident which could affect plant safety. Experience indicates that the approximate cost of hydrostatically testing a segment of piping ranges from \$10,000 to \$20,000 considering the support activities. As indicated above, this code requirement can have a significant effect on the flow and length of a refueling outage or unscheduled shutdown. Typically, hydrostatic pressure testing of a segment of piping would delay availability of the system by at least two shifts due to activities associated with tagout control, system line-up, fill and venting; etc.

The alternative pressure test and NDE permitted by Code Case N-416-1 fulfill the same purpose as a hydrostatic pressure test, i.e., a check for component leakage at a reduced cost while increasing plant safety. Safety is increased when pressure testing is selected over hydrostatic testing because: 1) the affected system would be available to perform its safety function sooner if needed, 2) the probability of challenging the pressure integrity of any affected component or causing an inadvertent actuation of a safety/relief valve or safety feature is reduced, and 3) the elimination of jumpers and blank flanges reduces the possibility of damage to pipe connections and relief valves which could cause system leakage or valve inoperability.

4. **Alternative Method of Examination**

Conduct additional NDE for class 3 piping as defined under item (d) below and implement the following criteria taken from Code Case N416-1, "Alternate Pressure Test Requirement for Welded Repairs or Installation or Replacement Items by Welding" in lieu of the hydrostatic tests required by Article IWA-4000.

- (a) NDE shall be performed in accordance with the methods and acceptance criteria of the applicable Sub-section of the 1992 Edition of Section III.
- (b) Prior to or immediately upon return to service, a visual examination (VT-2) shall be performed in conjunction with a system leakage test, using the 1992 Edition of Section XI, in accordance with paragraph IWA-5000, at nominal operating pressure and temperature.
- (c) Use of this Case shall be documented on an NIS-2 Form.
- (d) The root (pass) layer of socket and butt welds on the pressure retaining boundary of class 3 components shall be subject to either a surface examination or volumetric examination of the final weld at the owner's option.

If the previous version of this case were used to defer a Class 2 hydrostatic test, the deferred test may be eliminated when the requirements of this revision are met.